

AKD¹
based upon a radial position of the head assembly in relation to the disc.

Claim 2 has been cancelled.

AC Sub D¹
3. (Amended) A disc drive comprising:
a rotating disc mounted for rotation in the disc drive;
a head assembly for recording digital information to and retrieving information from the disc;
a head suspension including a load portion adapted to supply a load force to the head assembly at a load point and a gimbal portion to allow the head assembly to pitch and roll relative to the load point;
an actuator coupled to the head suspension to move the head assembly radially relative to the disc; and
means for dynamically controlling roll attitude of the head assembly.

Claims 4-6 have been cancelled.

AK Sub B¹
7. (Amended) A head suspension for mounting a head assembly in cooperative engagement with a rotating disc in a disc drive, the head suspension mounted to an actuator for controllably moving the head assembly radially over a surface of the disc, the head suspension comprising:
a load beam portion for exerting a load force on the head assembly relative to a load point;
a gimbal portion having the head assembly coupled thereto to allow the head assembly to pitch and roll relative to the load point and the gimbal portion including opposed spaced gimbal beams on opposed sides of the load point;
a plurality of bending elements including at least one

Sub B1
bending element on one of said gimbal beams and at least one bending element on another of said gimbal beams.

AK
8. (Amended) A head suspension as claimed in claim 7, wherein: the plurality of bending elements each includes opposed leads coupled thereto to selectively energize the plurality of bending elements.

9. (Amended) A head suspension as claimed in claim 7, wherein: the at least one bending element on the one of said gimbal beams and the at least one bending element on the other of said gimbal beams are formed of a thermally expandable material forming a bi-metal structure having different coefficients of thermal expansion.

Claim 10 has been cancelled.

AM
11. (Amended) A head suspension as claimed in claim 7, wherein: the plurality of bending elements are formed of a piezoelectric material.

Sub B2
12. (Amended) A head suspension as claimed in claim 7, wherein: the at least one bending element on the one of said gimbal beams and the at least one bending element on the other of said gimbal beams have an elongated length extending along an elongated length portion of the gimbal beams.

Claim 13 has been cancelled.

Sub B3
AS
14. (Amended) A head suspension as claimed in claim 8, wherein the plurality of bending elements include opposed leading and trailing ends and the opposed leads are coupled proximate to

118
B3
opposed leading and trailing ends of the plurality of bending elements.

Claim 15 has been cancelled.

Sub
16. (Amended) A head suspension for mounting a head assembly in cooperative engagement with a rotating disc in a disc drive, the head suspension mounted to an actuator for controllably moving the head assembly having a leading edge, a trailing edge and opposed sides radially over a surface of the disc, the head suspension comprising:

119
a load beam portion for exerting a load force on the head assembly relative to a load point;

a gimbal portion having the head assembly coupled thereto to allow the leading edge of the head assembly to pitch about a pitch axis and the opposed sides of the head assembly to roll about a roll axis relative to the load point;

the gimbal portion further including a plurality of bending elements including at least one bending element on a first side of the roll axis and at least one bending element on a second opposed side of the roll axis actuatable to adjust a roll attitude of the head assembly relative to the roll axis.

17. (Amended) A head suspension as claim in claim 16, wherein: the plurality of bending elements are formed of a thermally expandable material forming a bi-metal structure having different coefficients of thermal expansion or a piezoelectric material.

18. (Amended) A head suspension as claimed in claim 16, wherein: the gimbal portion further comprises a pair of

19-10
longitudinally extending gimbal beams and a connecting cross member between distal ends of the pair of gimbal beams; and
the plurality of bending elements are mounted on the connecting cross member.

Sub 11
Claim 19 has been cancelled.

20. (Amended) A head suspension as claimed in claim 16, wherein:
the gimbal portion further comprises a pair of longitudinally extending gimbal beams; and
the plurality of bending elements are mounted on the pair of gimbal beams.
19-10

21. (Amended) A head suspension as claimed in claim 16, wherein:
the plurality of bending elements each include opposed leads coupled thereto to selectively energize the plurality of bending elements.
Sub 14

Claims 22-23 have been cancelled.

Sub 10
Please add new claims 34-38 as follows:

34. (New) The head suspension assembly of claim 1 wherein the means for controlling roll (parameters) includes a plurality of bending elements on opposed sides of the roll axis.
All

35. (New) The head suspension assembly of claim 34 wherein the plurality of bending elements are formed of a thermally expandable material forming a bi-metal structure having different coefficients of thermal expansion or a piezoelectric material.
Sub 10

36. (New) The head assembly of claim 34 wherein the plurality of

12-11 Sub B6
12-1
bending elements are independently energized relative to the radial position of the head assembly in relation to the disc.

37. (New) The head assembly of claim 9 wherein the opposed spaced gimbal beams have a different coefficient of thermal expansion than the plurality of bending elements to form the bi-metal structure having the different coefficients of thermal expansion.

38. (New) The head assembly of claim 7 wherein the at least one bending element on the one of said gimbal beams and the at least one bending element on the other of said gimbal beams are energized based upon a radial position of the head assembly relative to the disc.
